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Can We Talk?
Transformational Leadership and Communications Technology at the Tactical Level of War

A Monograph
by

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Armor

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ABSTRACT

Title: CAN WE TALK? TRANSFORMATIONAL LEADERSHIP AND
COMMUNICATIONS TECHNOLOGY AT THE TACTICAL LEVEL
OF WAR by MAJ John K. Stoner, USA, 55 pages.

This monograph examines the tension between the science of
increased technological control and the art of the demands of command
and leadership on the modern battlefield. Specifically, it analyzes the
potential for battalion commanders to exercise transformational leadership
if they have the ability to monitor the locations and activity of all their
subordinates.

The monograph is introduced with a brief presentation of the
character of combat on the lethal battlefields of the future. It goes on to
show that these conditions will require units to execute dispersed
operations in order to survive -- only massing to generate combat power
before quickly dispersing again. The assertion is made that fighting wars
with these methods will require leaders to develop leadership styles, such
as transformational leadership, which empower their dispersed
subordinates to exercise unprecedented individual initiative. The question
of how the increased technological capacity to control will affect such
leadership styles at the tactical level of war is then posed.

A thorough examination of the evolution of transformational
leadership theory in the early 1980's follows the introduction. Brief case
studies are presented which highlight the potential for transformational
leadership in political, corporate, and military settings. Current
developments in communications technology are then considered with
special emphasis on improvements in synchronization and generation of
combat power. A more thorough examination of the communications
capabilities of the Inter-Vehicular Information System (IVIS)
demonstrates that the deployment of an automated command and control
system can lead to improved synchronization on the lethal battlefield of
the future.

Finally, the monograph analyzes the intersection of the vectors of
transformational leadership and IVIS at the level of the battalion
commander. It ends on a cautionary note, with suggestions for carefully
employing such technology in the turbulent years to come.

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As the dawn of the 21st century rapidly approaches, the pace of technological change in military weaponry has developed an almost breathtaking momentum. In fact, even military professionals are hard pressed to offer an accurate prediction of just how lethal future weapons will become. Consider for example the destructive potential of directed energy weapons, high velocity ballistic guns, and extreme noise and light producing weapons. When added to the killing capacity of existent weapons of mass destruction such as nuclear, chemical, and biological devices, one can predict with certainty that the battlefields of the next century will be exceptionally hazardous places for forces which operate on them.

In addition, information from global satellite imagery, signals intercept data, and airborne radar systems will be used to produce near real time intelligence in support of ground operations. A force which holds still too long or presents a large signature is vulnerable to attack at any time; units will have to move often and aggressively to survive. Although fluid and dynamic in character because of this increased requirement to move to avoid detection and destruction, future battles will be punctuated by violent spasms of lethality.

These accelerating developments in weapons and target acquisition technology will force modern armies to operate widely dispersed in order to avoid detection and engagement over extended distances on the lethal battlefield of the future. Forces will train to use the improved reliability, mobility and speed of their high technology weapon systems to rapidly disperse, concentrate to mass firepower, and then disperse again to avoid enemy counterattacks.[1] Evolving technologies will also enable

commanders to direct the actions of their subordinates through more reliable communications devices which facilitate control over greatly extended distances. Commanders and their staffs will use satellite communications and global positioning devices to weave together "spider web" control systems with worldwide capability. The Intervehicular Information System (IVIS), which is analyzed in this monograph, will enable armor commanders at the brigade/regimental level and below to track the location and movement of individual vehicles under their control.

The resultant cumulative effect of these technological changes indicates that Army leadership on the future battlefield may be fundamentally different from current leadership practice. Because of the increased complexity of their endeavor, leaders on the future battlefield will face a variety of distinctly different challenges from those which confront contemporary military leaders.

For example, future combat leaders at all levels will face the conceptual requirement to more rapidly anticipate events in time and space during dispersed operations. They may have to operate in an environment characterized by intense electronic interference, which could substantially reduce the ability of a targeted force to communicate effectively. Additionally, the violent and potentially destructive character of technological warfare will increase the confusion its participants confront. Commanders will therefore be forced to generate higher levels of cohesion among their widespread subordinates. Only then will individuals in tactical combat units be able to overcome intense personal fear to move and fight autonomously in synchronization with their commander's intent.

To enable the American Army to fight in this fashion, our leaders must develop personal leadership styles which empower their dispersed subordinates to exercise unprecedented individual initiative. One powerful technique, originally termed transforming leadership by theorist James MacGregor Burns, transforms the relationship between both leader and led through more active engagement of the follower in the leadership process. The potential result of transformational leadership is performance beyond expectations.[2] A unit led by a military transformational leader, according to this theory, ought to be better prepared to win the complex and lethal battles of the future because the followers in the unit are empowered to act autonomously. Its members will share the common purpose expressed by its commander, and pursue that mission tenaciously.

Yet modern communications technology may run counter to the development of transformational leadership. If tactical commanders have access to more and more information about their subordinates' activities, they may be tempted to use it to exercise ever greater control over their employment. Logically, at some point too much technological control may constrain the autonomous actions of lower level leaders. With increased technological control by commanders comes the potential for decreased individual initiative by subordinates. This tension between the potentially opposed vectors of the science of increased technological control and the art of the demands of command and leadership on the modern battlefield constitutes the focus of my monograph.

The purpose of this paper, then, is to address the relationship between improved technological means of communication and the demands of leadership in future wars. Will battalion commanders lose the

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ability to exercise transformational leadership if, through the a ployment of IVIS, they gain the ability to track the location and movement of individual vehicles under their control? A useful starting point for analysis is the leadership theory of James MacGregor Burns.

Burns' Theory of Leadership

In his Pulitzer Prize winning book, Leadership, Burns examines the processes of leadership in order to derive a sound practical theory of what leaders do and how they develop. Although he originally focused his research strictly on political leadership, Burns was fundamentally concerned with the intellectual and moral crisis in leadership which he had noticed prior to completing the study in 1978. He posits that leadership is one of the most observed yet least understood phenomena in human behavior and strongly asserts that what is most needed is a solid theoretical basis for the study of leadership.

To accomplish this task, Burns defines leadership as a process of "leaders inducing followers to act for certain goals that represent the values and motivations -- the wants and needs, the aspirations and expectations -- *of both leaders and followers.*"[3] The important distinction embedded in this definition is the emphasis on the goals of all the persons involved in the leader-follower relationship. In other words, the purposes of both participants are important in understanding leadership. According to Burns, one cannot fully understand the dynamics of leadership outside this context.

Burns then goes on in his analysis to show that the interactions between leaders and followers fall into two fundamentally distinct forms of leadership: transforming and transactional.[4] Transforming leadership

is the more complex and powerful of the two styles. It occurs "when one or more persons *engage* with others in such a way that leaders and followers raise one another to higher levels of motivation and morality."[5] The interactions in transforming leadership, then, take place as the purposes of the leader and follower coincide.

It is important at this juncture to highlight the moral component of Burns' definition of transforming leadership. He concentrated his interest on the form of influence which would most effectively satisfy the higher level needs of the follower.[6] When this type of influence in fact occurs, and the leader and follower transform, the result is moral leadership. All who are involved in the process benefit, because they achieve both their mutually established goals and a feeling that they acted in pursuit of a greater moral good. This view holds that moral leadership has a causative effect on an organization.[7] Individuals are motivated by the higher moral purposes of the group, which fosters a level of effort that yields performance beyond expectations.

A Case of Transforming Leadership:
Martin Luther King, Jr.

The aspirations and efforts of Martin Luther King represent an absolutely unambiguous example of the kind of moral leadership which Burns described as transforming. A closer look at King's role as head of the Southern Christian Leadership Conference (SCLC) will bring the image of an exceptional transforming leader into sharper focus.

Pause for just a moment and consider the first thoughts which come to mind as you read the words, "I have a dream that one day this nation will rise up and live out the true meaning of its creed: 'We hold these truths to be self evident, that all men are created equal.'"[8] Almost every

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member of our ge⋅ ⋅tion can immediately recognize those words as part
of King's memorable speech of August 28, 1963 in Washington, D.C.[9]
The greater moral purpose which they describe is also easily recognizable
as identical to Burns' concept of the leader's role in raising followers to
higher levels of motivation and morality through transforming leadership.

This was not always the case with King: he was reluctant to accept
the role as leader of the SCLC shortly after the arrest of Mrs. Rosa Parks
in Montgomery, Alabama on December 1, 1955.[10] In fact, when he was
asked to organize and lead the boycott against the city bus lines, he had
only recently married Coretta Scott King and assumed his duties as pastor
of a church in the city. There were clearly significant personal risks
involved in the decision to take charge of an organization formed to foster
momentous change in the racially segregated south.

But once he agreed to take the position, a unity of purpose
developed between King and the members of the SCLC. Essentially, this
purpose took shape around the fundamental message of Christian doctrine:
that non-violent resistance to the unjust policy of segregation was morally
correct. And once he accepted the place his followers had for him, "their
struggle became absolutely indistinguishable from his own."[11] The
aspirations and expectations of the members of the SCLC transformed to
an elevated level through the process of leadership -- as did the
participants in the leadership relationship.

And King's actions and words reinforced the perception that he
was personally united with his followers. After his arrest in
Montgomery, for instance, King said he "... was proud of my crime. It
was the crime of joining my people in a nonviolent protest against
injustice."[12] When his home was bombed by militant opponents, he

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counselled restraint and calmed an angry crowd which had gathered to protest the violence. He travelled to India in 1959 to observe first hand the peaceful methods used by Ghandi in opposition to the government in power. One is struck by the description, written years later, of King after that visit as a person who had experienced "a transformation."[13]

On the night before his assassination, he said that death "really doesn't matter with me now. Because I have been to the mountain top. And I've looked over, and I've seen the promised land. I may not get there with you. But I want you to know tonight that we as a people will get to the promised land."[14] Clearly, King's attitudes and expectations had changed as a leader. But the same was also true for his followers, since the biggest change in the movement "was in the Negroes themselves. They had a new pride in their race,"[15] which motivated them to moral action.

King was an excellent speaker who could articulate ideas forcefully. He also had an "unexcelled ability to pull men and women of diverse viewpoints together and to keep their eyes focused on the goals"[16] of integration. His leadership united his purpose with that of his followers and transformed American society in the process. In fact, he so strongly affected the views and emotions of Ralph Abernathy that in an open letter published in Ebony magazine, Abernathy compared King's death to that of Christ's.[17]

Both King and his followers were transformed as a result of the leader-subordinate relationship they shared. King's attitude about his personal role in the reform movement changed. He forcefully articulated a vision to which the members of the SCLC responded. Although the case of Martin Luther King's leadership is certainly an exceptional one, it

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clearly highlights the power of Burns' conception of transforming leaders as agents of positive moral change through the process of leadership. A concept which, as will be shown later in this monograph, can also be a fundamental component of outstanding military leadership.

Transactional leadership, on the other hand, is the more common of the two forms in Burns' theory. It is also the form that "has dominated leadership research since World War II."[18] Transactional leadership is marked by interactions in which the participants share no enduring goal. Instead, their relationship is characterized by the exchange of valued commodities and not by any larger common purpose. In a simply stated and timely political example, a registered voter might commit his or her personal electoral support to a candidate in exchange for a campaign promise to increase government subsidies which create jobs in the voter's hometown economy.

In direct contrast to the transforming process, transactional leaders offer their subordinates something that the followers want in exchange for something the leaders want. Rather than agree upon a mutual purpose which is beneficial for all parties, transactional leaders and their followers enter into a relationship of mutual dependence. Both sides must contribute for the endeavor to bring success -- but the followers' personal goals may not be at all related to those of the leader.

Burns' monumental study provided a sound theoretical basis for the study of political leadership. But since it was primarily focused only on the political context within which Burns observed these leader behaviors, it also motivated other students of leadership to examine the broader applicability of transforming and transactional leadership. The most important of those theorists was Bernard Bass, who modified Burns'

original model in 1985 in order to apply the concept outside the realm of politics.

Bass' Theory of Leadership

While he accepted Burns' definition of leadership as a process, Bass approached transforming and transactional leadership from a different perspective. Rather than view the two as distinct types of leader behaviors, Bass posited that both could be used by the same person in different situations. To explore this possibility in greater depth, he developed a Multifactor Leadership Questionnaire (MLQ) with which to analyze leadership. As a result of his work, published in <u>Leadership and Performance Beyond Expectations</u> in 1985, Bass identified specific traits of both transformational (rather than transforming) and transactional leaders.

The essential characteristics of a transformational leader are charisma, individualized consideration of subordinates, and intellectual stimulation.[19] When combined, these qualities form the behavioral nucleus of what a transformational leader does to motivate followers and instill them with trust and confidence in their leader.

Charisma was originally a Greek word that meant gift, which "the early Christian church [used] to describe gifts from God that enabled the receiver to perform extraordinary feats, such as prophecy and healing."[20] As a component of transformational leadership, charisma dates more recently to the writings of sociologist Max Weber, who described it as a type of social authority as early as the 1920's. Weber specifically defined charisma as "a certain quality of an individual personality by virtue of which he is set apart from ordinary men and treated as endowed with

supernatural, superhuman, or at least specifically exceptional powers or qualities."[21]

Contemporary efforts to define charisma focus primarily on descriptions of the attributes of charismatic behavior. For instance, Bass describes a charismatic as one who builds follower trust or one who develops a high emotional attachment between a leader and his or her followers.[22] This highlights the difficulty of arriving at a precise definition of the motivational effect some charismatic leaders have on their followers. Bass' use of the term as an essential characteristic of transformational leaders is no different. He asserts that charismatics "have insight into the needs, values, and hopes of their followers," and unite people to seek objectives that require extraordinary performance by everyone involved in the relationship.[23] As such, charisma is the most important component in Bass' concept of transformational leadership.

Transformational leaders also give individualized consideration to their subordinates within the context of the leadership process. They take care to interact with each member of the organization on a personal basis. Each subordinate is therefore "treated differently according to each subordinate's needs and capabilities."[24] By so doing, a transformational leader considers the individual characteristics of each person before choosing the influence measures which are appropriate for that particular subordinate. Such consideration of the individual fosters trust and confidence between the leader and the led.

When leaders show individualized attention, they also gain insight into the needs and values of their followers. Armed with this personal perspective, they can then establish a mentoring relationship with their subordinates. Therefore, the characteristic of individualized consideration

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gives transformational leaders opportunities to foster growth in their followers. The leader can tailor his or her developmental initiatives to the needs of each member of the organization. Such opportunities for personal growth unlock the potential of subordinates, even though they would likely be overlooked in a transactional relationship.

Intellectual stimulation refers to the ability to highlight existing problems and contrast them to the leader's vision for the future state of the organization. The gap between the vision and the current state of affairs represents the area in which new ideas can be injected into the way the group does business. A transformational leader increases awareness of the tough issues which face the organization and mobilizes follower efforts to solve those problems. The vision serves as a focal point on which each person can focus their productive and intellectual energy.

In addition, Bass' view of transactional leadership is similar in many respects to that of Burns'. But Bass takes the concept further by asserting that each interaction in a transactional relationship consists of a "promise and reward for good performance, or threat and discipline for poor performance."[25] Bass designates contingent reward, active and passive management by exception, and laissez-faire practices as essential characteristics of such leadership.

A transactional leader uses contingent reward behaviors to motivate subordinates according to the terms of the transaction upon which they have agreed. If followers perform as previously stated, they earn their reward. If, on the other hand, they fail to measure up to the expectations of the transaction, some form of punishment will be administered. Such responses by the leader might range from verbal praise or admonishment to promotions or reductions in position or prestige.

This is not meant to imply that the use of contingent rewards is strictly limited to a cold transaction between the leader and the led. It can in fact be a very powerful method for motivating certain kinds of subordinates. For example, unambiguously articulated goals for improved performance can be set such that followers clearly understand what is expected of them. By comparing their current achievements to these goals, uncertainty in the leadership process is reduced or eliminated. For a person who is anxious to earn the agreed upon reward, such stimulation may be the only motivation that is needed to drive the individual toward positive performance.

Active and passive management by exception and laissez faire practices are closely related. Fundamentally, Bass includes these characteristics to describe the actions of leaders who intervene in the workplace only when performance expectations are not being met. As long as nothing goes wrong, such a leader will not interrupt the work of subordinates. When intervention is needed, it is generally negative in tone. For this reason, management by exception generally motivates followers to avoid adverse responses rather than exciting them about the possibility of performance beyond expectations.

In short, leaders who use only transactional behaviors focus on the tasks at hand in order to manage their followers by controlling rewards and punishments to achieve goals established by the leader. The "leader clarifies task requirements and rewards for compliance"[26] to extract desired performance from subordinates.

However, Bass is less optimistic about the performance of strictly transactional leaders, saying that such leadership is often "a prescription for mediocrity."[27] One cannot expect to draw performance beyond

expectations from subordinates who only perform according to
transactional expectations. The promise of purely transactional leadership
for future military leaders, then, seems dim. To assure success, more
will be required of isolated subordinates on the technological battlefield
described in the introduction to this monograph.

Transformational Leadership	Transactional Leadership
* Charisma * Individual consideration * Intellectual stimulation	* Contingent reward * Management by exception (both active and passive) * Laissez-faire[28]

Figure 1: Bass' Characteristics of Transformational and Transactional
Leadership

For the purposes of this study, the most important difference
between the views of Burns and Bass was the emphasis Bass placed on the
role of the transformational leader in establishing goals for the group: the
group's mission or purpose. Specifically, transformational leaders
"inspire and excite their employees with the idea that they may be able to
accomplish great things with extra effort."[29] By so doing, the leader
causes his or her organization to transform: followers identify with the
goals established for the group and raise their performance level to
achieve those aims. The role of the transformational leader is to activate
follower motivation and increase follower commitment without regard for
whether the end result ultimately benefits the subordinate. Such a leader
gets "subordinates to transform their own self-interest into the interest of

the group through concern for a broader goal."[30] The goals of the group represent issues of greater consequence on which all should focus their energies.[31]

This represents a distinct change from the original concept of transforming leadership in that Burns limited his analysis to enlightened political leaders who focused on the higher-order moral aspirations of their followers. Therefore, by definition Burns' transforming leader would consider the goals of all the persons involved in the leader-follower relationship.

This is in direct contrast with Bass, who believes that "transformational leadership occurs when leaders ... generate awareness and acceptance of the purposes and mission of the group"[32] even though the followers may not have played a significant role in establishing that purpose. In other words, a transformational leader might place less emphasis on the aspirations of his or her followers when establishing the goals of the organization.

Nor must the transformational leader concentrate strictly on the moral aspects of the leadership process. Adolph Hitler could be considered a transformational leader according to this definition, because he certainly had a transformational effect on the German people.[33] But he obviously did not act in accordance with Burns' moral perspective.

Bass' definition of transformational leadership therefore has broader applicability outside the study of political leadership. This is not meant to imply leadership in areas devoid of moral considerations, but it does indicate that Bass' view might be applicable to organizations and individuals in other fields, such as military leaders. The transformational process, in Bass' view, has more to do with developing and directing

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energy in subordinates than it does with the moral character of the relationship.

Research on this theoretical perspective remains incomplete. For instance, Bass has considered the utility of separating inspiration from charisma to add a fourth characteristic of transformational leaders,[34] since emotional charismatic effects are such an important component of the motivational process. Additionally, theorists have not yet formulated a unified conceptual framework within which to study charisma and from which to derive measurable standards for testing these behaviors.[35]

As the theory develops, though, it remains clear that transformational leadership is quite a powerful explanatory model. Recent research on the utility of this phenomenon has dealt primarily with corporate leadership in companies which must compete in the turbulent domestic and global economies.

The Case for Transformational Leadership
in Corporate America

One need not have a great deal of corporate experience or business acumen to understand why corporate executives would be interested in leadership which produces performance beyond expectations. These business leaders are judged by the financial performance of the companies they direct: is their enterprise profitable? Companies which do not actively and effectively manage their assets cannot achieve economies of scale. And companies which cannot achieve the efficiency of economies of scale do not produce profits and therefore do not survive in a competitive market such as the domestic American economy. In fact, 40 percent of the U.S. companies on the *Fortune 500* list at the beginning of

the 1980's were forced out of that select group of firms in the decade that followed.[36]

The global market economy is marked by even greater change. Diverse patterns of global trade have created economic relationships that are markedly different from those which dominated international economics just a few years ago. Flows of capital, manufactured goods, people, and information across international borders have increased to such an extent that political and economic relations between modern states are interwoven in an extremely complex tapestry.

The leaders who must guide their companies through this confusing maze face a daunting task. Almost every competitor has access to the same raw materials and basic manufacturing processes. Markets, for the most part, have limited barriers to free trade. The number of customers in a given market is constrained -- demand is never unlimited. Only effective companies survive in such competition, and only the best companies produce profits and flourish.

In response to this challenge, many companies have concentrated their efforts toward improved economic performance on the one variable which can be significantly different among corporate competitors: leadership. American companies spend billions of dollars each year to enhance leader effectiveness. In a highly competitive business environment, corporations which have the most outstanding leaders stand the best chance of economic survival. If they can motivate their subordinates to achieve performance beyond expectations, they will gain an edge over less capable companies and improve the financial bottom line of their business enterprise.

In a recent book titled The Transformational Leader, Noel M. Tichy and Mary Anne Devanna apply the concepts of Bass' transformational leadership to the problems of corporate leaders in the modern era. For Tichy and Devanna, the critical issue which business leaders face is accelerating change in the corporate marketplace. Companies must understand how consumer demands and markets are changing and align their business strategy accordingly. Organizations that can adapt quickly will overtake those which cannot. Leaders must transform their organizations and seek constant improvement to achieve future success.

According to Tichy and Devanna, each leader must address three themes in order to guide his or her company through the transformational process. Transformational business leaders must first recognize the need to revitalize their company, then create a new vision for their organization, and finally institutionalize change in order to meet the demands of the future.[37] Their book is a study of the efforts of a wide variety of corporate leaders who faced the difficult task of revitalizing their respective companies in anticipation of future market trends.

Most of Tichy and Devanna's analysis is narrowly focussed only on business personalities, and they admit that much remains unclear about the success of noteworthy business leaders. The authors call for continued in-depth research to understand both the dynamics of transformational leadership and its future applicability at all levels within an organization. Bluntly stated, simply calling such people "transformational" will not suffice for managers who hope to learn from these authors' analysis in order to stay ahead of their competition.

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But Tichy and Devanna do identify similar behaviors in each of the outstanding corporate leaders they studied, and their analysis lends insight into the potential which transformational leadership holds in a wide variety of organizational contexts. Perhaps the best known leader analyzed in the book is Lee Iacocca, who organized "one of the most well known turnarounds in American history"[38] after he joined Chrysler Corporation in 1979.

Specifically, the authors attribute Iacocca's impressive results at Chrysler to his ability to clearly communicate his "vision of the new Chrysler Corporation" and to motivate his followers to achieve the new goals he set for the company. In fact, even though he had to reduce Chrysler's workforce by 60,000 people, Iacocca was still "able to get those who remained excited and signed up by helping them understand the new business strategy."[39] He clearly impressed upon them the importance of productivity and quality by stressing individualized consideration of his subordinates. He highlighted existing problems in the company and contrasted them to his vision for the future of Chrysler. And all this after he had been fired as president of Ford Motor Company.

In this example, Lee Iacocca had charisma, showed individualized consideration for his subordinates, and motivated his subordinates to achieve the unifying vision he established. He definitely fits Bernard Bass' theoretical description of a transformational leader and achieved remarkable results with Chrysler Corporation. Certainly there is good reason to continue to analyze the utility of transformational leadership at all levels within modern corporations. As Tichy and Devanna proceed with their research into the applicability of this powerful model to companies competing in the turbulence of future economies, it is time we

turn our focus to the potential rewards of applying transformational leadership to the demands of combat leadership on the lethal technological battlefields of the future.

The First Vector: A Case for Transformational Leadership in the United States Army

The raison d'etre of the United States Army is to deter potential enemies from attacking American interests and should deterrence fail, "to fight in defense of U.S. interests to prevent any potential adversary from seizing that which the United States values."[40]

This is a special responsibility which has been entrusted to the Army by the American people; a responsibility which brings with it an implicit demand for outstanding leadership. The costs of failure on the battlefield are excruciatingly high because soldiers may die due to a combat leader's failure.

In contrast consider the case of business leaders, such as those analyzed by Tichy and Devanna, who fail. While the results of poor corporate leadership may be financially disastrous for a particular company and the economic fortunes of those employed by it, the bottom line is more a threat to lifestyle than to the lives of the people in the company. Both the leader and his or her employees simply lose their job and are forced to seek other employment (remember that Lee Iacocca only earned his outstanding reputation as a corporate leader at Chrysler after he had been fired by Ford).

But the same is not true for Army leaders charged with the responsibility to take American soldiers into combat. An Army leader who fails will lose far more than a job and an economic livelihood. In

order to avoid such a catastrophe, Army leaders must be as professional and effective as possible. So as the Army prepares to defend the nation's interests, if necessary, on the lethal battlefields of the 21st century, its leaders will be expected to deliver performance beyond expectations; performance which can best be achieved through military transformational leadership.

In fact, much of Bass' quantitative research proves that the most effective military leaders are those who exhibit transformational behaviors. Bass derived his models of transformational and transactional leadership (shown in Figure 1 above) based on data which he gathered from Army officers at the U.S. Army War College in the early 1980's.[41] History also provides clear examples of effective military leaders who fit the model of transformational leaders. Consider, for instance, how closely Bass' components of transformational leadership align with the performance of a famous World War II combat leader, GEN George S. Patton, Jr.

The Transformational Leadership of GEN George S. Patton, Jr.

Patton's leadership techniques were stylishly portrayed by actor George C. Scott in Hollywood's version of the General's bold wartime service. But closer inspection of the historical record reveals that the film version of Patton's exploits is not actually that far from the truth. Patton really did wear his general officer rank insignia on his ivory-handled pistols, and did tell his soldiers that "... it is fine to be willing to die for [your] country, but a damned sight better to make the German die for his."[42]

However, he did these things for a reason. He understood how to use the effects of his behaviors to motivate soldiers toward the accomplishment of seemingly impossible tasks. "Patton's greatest quality as a leader was his ability to infuse his troops with his own martial ardor."[43] A quality which caused soldiers like Martin Blumenson, assigned to the Third Army, to say emotionally that although he had never actually talked to his commanding general, he still "gazed at him in wonder from afar."[44] The force of Patton's charismatic leadership was so great that he "magically" drew his soldiers "into a charmed circle composed of privileged members"[45] of his command. They responded to his leadership and charisma emotionally. It is difficult to imagine that a unit could have achieved the successes of the Third Army under a leader who embodied purely transactional leadership traits.

Patton also showed a significant amount of individualized consideration of his subordinates, although he is widely remembered for his tough treatment of some of his soldiers. Few commanders were known for spending more time with wounded soldiers than Patton, even though "he hated hospitals and he had to force himself to face men minus legs and arms or blinded or disfigured."[46]

Patton also understood that the courage necessary to fight in combat was often found in the personal example of the leader. His "constant visits to the front lines were a source of encouragement and inspiration to the men"[47] of his army. In War As I Knew It, Patton wrote that "the more senior the officer who appears with a very small unit at the front, the better the effect on the troops. If some danger is involved in the visit, its value is enhanced."[48] Patton made just such an impression on the beach at Fedhala, North Africa in early November 1942. While

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French aviators strafed the beach, Patton spent almost eighteen hours personally participating in unloading operations in order to quiet "the nerves of the troops" and make the initial landing a success[49] -- all this while wearing both white-handled pistols on his S.D. Myres belt.[50] He clearly understood, and through his actions displayed, individualized consideration of his subordinates.

Patton was also a man of clear vision, able to intellectually stimulate his soldiers to achieve the goals he articulated. When he assumed temporary command of the 2d Armored Division in 1940, Patton firmly believed that armored divisions were "terribly powerful instruments of destruction"[51] which would be the most devastating units in modern combat. During the months which followed, Patton's vision propelled the division forward in both training and morale. By the Spring of 1941, the unit had "changed from an idea to a powerful fighting force."[52] Patton motivated his soldiers through a powerful vision for the future potential of the Division, which earned the nickname "Hell on Wheels" for their efforts.

A similar development can be seen in Patton's tenure with the Third Army, beginning in March of 1944. He wasted no time in clearly spelling out his intent to the soldiers and staff while still in England before the D-Day landings. In a speech to the 12th Corps, Patton described how he wanted the Third Army to become a unified entity which "lives, sleeps, eats, and fights as a team."[53] Although many remember his speech as George Scott portrayed it in the movie, it was a clear example of a leader expressing his vision for the future of his organization. It served as a focal point on which each soldier focused his productive energy.

And the unit responded with performance beyond expectations when they entered combat. "It was this type of leadership that drove men beyond the limit of whatever capabilities they thought they had."[54] It was military transformational leadership.

It is interesting to note that in its doctrinal leadership manual, FM 22-100, the Army defines leadership as "the process of influencing others to accomplish the mission by providing purpose, direction, and motivation."[55] While this definition acknowledges that leadership is a process, as Burns and Bass do, its sole focus remains the leader as the focal point of the endeavor. It does not specifically address the potential gains in performance which can be achieved when leaders purposefully motivate followers to identify with the goals established for the group. So, while the Army's current doctrinal definition of leadership contains a fundamental orientation on leadership as a process, it lacks sufficient emphasis on the follower's role in the leadership relationship.

Yet it is the followers who will ultimately have to fight independently and achieve success on the dispersed, lethal battlefield of the future. Followers who, through the actions of their leaders, will need to develop a "substantially increased capacity for intelligent, flexible, disciplined, autonomous action"[56] in synchronization with their commander's intent.

Recent research on military leadership reflects this shift in emphasis to the effects of the leadership process on the critically important role of subordinates. In his foreword to the newly published second edition of Military Leadership -- In Pursuit of Excellence, LTG(Ret) Walter Ulmer acknowledges that "... it is not leader activity but leader impact on the subordinates and their ultimate productivity that is

the measure of performance."[57] The most effective future commanders will be those who, through the strength of their leadership vision and charisma, motivate their soldiers to put the goals of the unit ahead of their personal concerns.

The greatest opportunity for performance beyond expectations, then, can only be realized when the role of the subordinate becomes more prominent in the Army's leadership doctrine. The current doctrinal view of military leadership comes up short of unlocking the potential for performance beyond expectations -- a limitation that transformational leadership can certainly overcome.

The Second Vector: Communications Technology at the Tactical Level of War

Communications technologies have changed just as rapidly as have the physically destructive weapons of modern war. In fact, one could reasonably describe just the recent changes in military satellite capabilities alone as revolutionary. They have literally added a new dimension -- space -- to modern ground combat. Instantaneous communications now connect widely dispersed personnel over distances which would have been unimaginable just a few years ago. For example, during Operations Desert Shield and Desert Storm, special forces teams inserted deep into Iraqi territory conducted strategic reconnaissance missions with satellite communications links and ultra high frequency burst transmission radios.

GEN Schwartzkopf also had access to impressive communications technology as the operational commander in Saudi Arabia: the secure telephone in his war room automatically connected him to GEN Powell's office in Washington, D.C. without dialing. The Central Command

(CENTCOM) staff processed near real time information from satellites to produce intelligence on Iraqi unit movements and ballistic missile launches.

Many of these technological developments already serve as combat multipliers in units below the strategic and operational levels of war. Divisions and corps communicated with one another and passed Joint Surveillance Target Acquisition Radar System (JSTARS) downlink information in the desert via satellite lash-ups and tactical facsimile devices. Mobile Subscriber Equipment (MSE) is a digital, secure, automatic-switching tactical communications network which operates in a frequency hopping mode to counter enemy jamming. It is designed to allow mobile users to place and receive calls in the same manner that they would use a normal telephone.[58] Although it was not deployed in the units of the VII Corps, MSE did provide mobile cellular telephone style communications throughout the other divisions in the theater. In the case of the 3rd Armored Division, MSE was operational during the entire 350 kilometer advance through Iraq and Kuwait.[59]

Yet most of these systems do not extend all the way down to the maneuver battalions. Of course, MSE is the one exception, since there are two nodes authorized in each battalion. However, this is only one system, and it is being fielded slowly in unit increments. A new family of tactical radios, which passed its first field tests four years ago and is designed to replace the frontline portable and vehicle radios, is also gradually coming on line. The Single Channel Ground and Airborne Radio System (SINCGARS) will have a range of up to 35 kilometers, and will provide Electronic Counter Counter Measures (ECCM) against enemy electronic warfare.[60]

Even the Maneuver Control System (MCS), which is designed to coordinate maneuver control with the other four battlefield functional areas of the Army Tactical Command and Control System (ATCCS), has not been smoothly integrated into tactical units. MCS is a heavy, cumbersome system with software that is awkward and time-consuming to use. Although MCS should be completely fielded in FY 94, the required software updates might leave the system in a near constant state of change for an unpredictable period of time. The system still has a long way to go before it can rightly be considered a significant combat multiplier through improved command and control.

But the critical point in this regard is that, essentially, substantial improvements in communications technology have not yet been infused all the way down to the sharp end of the spear. During Desert Storm, units still closed with and destroyed their Iraqi enemies while communicating with the AN/VRC-12 and -46 family series of radios. These radios are older than many of the company grade officers who keyed them up to transmit tactical information and send reports during that conflict.[61] This need not be the case. The technology to support an automated information reporting and command and control system at the tactical level of war already exists, as will next be shown.

The Battalion and Below Command and Control System (B2C2) is a concept promulgated by the U.S. Army Combined Arms Command for providing a seamless command and control architecture down to the battalion/task force level. B2C2 will extend the capabilities of the Army Tactical Command and Control System (ATCCS) to the lowest possible level of command.

Specifically, the hardware envisioned for the B2C2 will perform the following functions for each node in the battalion and below system:

        1.) Provide automated processing of time consuming and repetitive functions which do not require decisions.

        2.) Graphically present a common battlefield picture (in 3 dimensions) which contains terrain features, known obstacles, graphic control measures, and locations and status of friendly and enemy forces.

        3.) Display position/location and navigation information for vehicles equipped with the system.

        4.) Enhance situational awareness by processing real time tactical information.[62]

The intent of such an initiative is to shorten the time needed to process information and make decisions. Ultimately, a commander who can acquire and assimilate information "and use it quickly in order to make and execute decisions faster than the enemy can react to them"[63] will gain a significant advantage over an opponent. Given the lethality and range of modern weapon systems, a unit which reacts faster than its enemy can gain and retain the initiative.

Additionally, a fully operational B2C2 will potentially improve the synchronization of combined arms operations, increase the battlefield lethality of the battalion/task force, increase survivability, and help units avoid fratricide.[64] B2C2 should provide these capabilities since every operator in a command net will share an identical picture of the battlefield and will know the current locations of all friendly forces and the reported locations of every enemy unit in the immediate area. B2C2 offers an automatic solution to the problem of identifying potential adversaries in an otherwise confusing and fluid combat engagement.

The Combat Vehicle Command and Control (CVC2) system, the specifications for which have been developed by the U.S. Tank-Automotive Command, is a subset of the Battalion and Below Command and Control system. It is a hardware configuration which will be limited in scope to maneuver control of armor and infantry fighting vehicles[65] and is intended to provide combat forces the ability to exercise near real-time automated command and control. The CVC2 system will accomplish this task by processing automated digital communications over standard combat net radios.

Each node in the system will be capable of sending and receiving the same information as that listed for the B2C2 system description above and will interface directly with the ATCCS. CVC2 is not intended to "replace or alter the current command structure of the maneuver battalion,"[66] but it ought to improve the speed and flexibility of the decision-making cycle. Each automated task which the CVC2 can accomplish will reduce the number of repetitive management requirements for the commander. It therefore has the potential to reduce the stress a leader confronts in combat, and give that commander the capability to react more quickly than the enemy.

The Intervehicular Information System (IVIS) is a hardware system developed at Fort Knox which facilitates the intravehicular and intervehicular sharing of tactical data among M1A2 tanks. In essence, it is the Armor Center's version of the CVC2 system deployed in the M1A2 tank at the Brigade/Regimental level and below. The central operating principle of IVIS is "the mutual sharing of tactical data and information within the combined arms team."[67] Both individual crews and armor units operating with IVIS will have access to the same picture of the

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battlefield. The system is designed to exploit the spread spectrum techniques of SINCGARS radios by transmitting tactical information in digital bursts, which will reduce radio transmission times.

The first field tests of IVIS at the National Training Center ended in October, 1992 to rave reviews from the four tank crews who participated.[68] This is admittedly a small sample of opinions since so few tanks have been equipped with IVIS. Yet the potential utility of the technology appears to be great because it will automatically perform the routine tasks which every armor leader must perform in combat. The system is designed to run in one of three modes: pre/post combat, combat, and diagnostics. The diagnostic mode will only be used for maintenance and trouble-shooting procedures, and so will not be covered in detail in this paper.

In the pre/post combat mode, IVIS will allow tank commanders to program selected routes and sector sketches for their individual vehicles. Its position reporting and navigation systems will mutually notify all friendly elements in the area of the vehicle's location, just as an IFF (Identification Friend or Foe) system does for aircraft. It will also automatically format messages which report main gun ammunition and fuel status for the tank commander. In other words, depending upon the default modes set in the system, IVIS will continuously update the date-time group, location, and call sign of the sending vehicle. Then, as soon as the vehicle's ammunition or fuel status changes to the next lower level of preparedness, IVIS will automatically inform both the vehicle and next higher commanders.[69]

A platoon leader's IVIS will perform a variety of intervehicular tasks which enable the leader to monitor the status of all the tanks in the

unit. It will consolidate individual vehicle sector sketches and help prepare a unified graphical fire distribution plan for the platoon. IVIS will be able to receive operations graphics from the company commander and facilitate lateral coordination by the platoon leader with adjacent platoons. In the case of logistical information, it will be able to automatically request situation reports from all the platoon's tanks and aggregate the information into one sustainment report for the platoon leader.

An additional consideration for a platoon leader equipped with IVIS is the problem of cascading data error, since this is the first level of leadership at which these problems might occur. Just as is now the case with radio communications, human errors reported at low levels can only be corrected by a subordinate who detects the mistake. However, such problems occur much more rapidly with automated technology. Attention to detail and effective training will be critical to avoiding the problem of cascading errors as information flows up the chain of command.

The functions which IVIS will perform at the company level should help the commander spend "more time forward coordinating and supervising the actions and missions of his subordinate elements."[70] It will allow the commander to enhance maneuver graphics with fire support, engineer, and combat service support overlays for distribution to subordinate platoons. IVIS will also consolidate the fire distribution plans of the platoons and assist the commander in mission preparation. The company's plan of action can then be sent to the tactical operations center by burst radio transmission, or to other units for lateral coordination.

Eventually, IVIS at the battalion level will be able to accept sensor and tactical data from higher headquarters and intelligence platforms.

This information can then subsequently be rapidly transmitted to subordinate elements in near real-time fashion. Ideally, as a result of all these capabilities, a company commander would never have to report to battalion headquarters just to receive an operations order, mission graphics, execution matrix, or intelligence update. Once standardized data protocols are installed throughout the unit, IVIS at the battalion level would enable the staff to quickly and efficiently distribute basic plan information in order to synchronize the actions of all its subordinate elements.

But the capabilities of the system would not completely eliminate the requirement to meet face-to-face with the battalion commander. On the contrary, the Armor Center's concept for the deployment of IVIS specifically states that such personal coordination is still necessary. This is especially true in the case of clearly understanding the higher commander's concept of the operation and intent.[71] But the impressive technology imbedded in IVIS will allow subordinate leaders to report for a modified orders briefing already familiar with the basic scheme of maneuver. Subordinates may even have the opportunity to conduct a limited reconnaissance prior to the brief and to recommend adjustments needed in the initial plan because they received the mission graphics before the meeting. This will undoubtedly speed the decision-making cycle greatly.

In the combat operation mode, IVIS is designed to help change the focus of combat elements to fighting the close battle. Therefore, all the functions described above in the pre/post combat mode remain in operation in combat. Position updates and sustainment reports are routinely monitored and forwarded by subordinates' systems. But in

addition, the appropriate lines of spot reports, such as the callsign and friendly vehicle location, are automatically completed to speed contact reports to higher headquarters.

At the company and battalion levels, spot reports can then be aggregated to portray an overlay of enemy activity. Since duplicate reports will be eliminated by IVIS, the commander's display will present an accurate, current portrayal of enemy activity. When combined with the consolidated position information of friendly vehicles operating in the area, the result will be a highly reliable picture of the battlefield for use in decision-making. Units which are out of position, or which have not maneuvered in accordance with the commander's intent, will rapidly be detected and directed back on course.

It is important at this juncture to keep in mind that "the intent of IVIS is not to turn the commander (vehicle through task force) into a processor of data,"[72] or to tie the commander to a visual display screen. Rather, the system is designed to consolidate tactical information in a format which can be more effectively used to make decisions and transmit orders, thereby enabling leaders to do what they ought to do best -- lead.

The Technological Case for IVIS

Clearly, the improved situational awareness which can be attained through the deployment of IVIS will lead to better synchronization of fighting units and increased combat power. It will reduce the time required to update and transmit routine information and clear leaders' minds for combat leadership. Perhaps most important, it will speed the cognitive processes required to make decisions under stress.

Not surprisingly, examples from combat scenarios at the National

Training Center (NTC) support this assertion. In their 1987 thesis at the

Naval Postgraduate School, Peter Polk and Gary Lee argue in favor of the

concept of the Battlefield Management System (BMS), a forerunner of

IVIS, to automate tactical operations as part of MCS. Their methodology

included analyses of communications recordings made during an actual

training exercise at the NTC. The authors established the digital

specifications against which a notional BMS should be judged and used

that information to quantify the positive impact which a tactical

automation system could have in a high intensity, stressful tactical

scenario.[73]

The results of their research are impressive. In the first example,

the authors consider the plight of a task force scout platoon which makes

contact with dismounted infantry and BMPs. During the brief fight which

followed, the scouts became decisively engaged, and the platoon leader

was killed. The platoon was never able to bypass the enemy, and the task

force headquarters first received an accurate spot report of the contact

location in an extended radio transmission over 24 minutes after it was

initiated.[74]

The scenario might have ended quite differently if the platoon had

been outfitted with a BMS operating through their existing radios. The

initial request for guidance after making contact would have been

completed approximately 20% faster. The automated call for suppressive

artillery fire would have been made roughly 22 minutes earlier than it

actually was. The task force headquarters would have known of the

contact as soon as the platoon leader punched the spot report button on his

BMS device. Without question, the unit would have been far more mission capable than the one described in this scenario.

The task force example described in the thesis also reinforces the case for an automated system for tactical information exchange and command and control. In the case study, Polk and Lee analyze the reactions of a task force which encounters a wire obstacle during a movement to contact. The unit was canalized by the obstacle and the wadis in the area, lost its freedom of maneuver, and became decisively engaged with the enemy. The unit was effectively neutralized after it suffered significant personnel and equipment losses.

In this case, the critical coordination shortcoming was the lack of speed with which the location of the obstacle was communicated to all units in the task force. Since trailing units had no knowledge of what had happened to the lead element, they continued to move forward in formation. As they ran up on the obstacle, the entire unit became unwittingly entangled with one another in the enemy's kill zone.

A technological solution to this particular problem lies in the graphic display capabilities of IVIS. Once the lead element had keyed in the location and type of obstacle, that critical piece of battlefield information would have been displayed on the IVIS terminals of the trailing unit commanders. They would have then been free to either occupy support by fire positions while the forward units took appropriate actions at the obstacle/breach site or bypassed the constricted area completely. At the very minimum, they would have had several options to consider in avoiding the snafu which ensued.

It is clear that the communications technology to support an automated command and control system which has potential for effective

utilization in combat exists: a system which will enable an armored force commander to effectively control the actions of the vehicles in his unit. How then might this potential capability affect the transformational leader?

The Case for Caution: the Intersection of Two Vectors

IVIS is not a panacea; there are substantial obstacles to its full scale deployment in the armored force. It is completely dependent upon the radio transmissions by which it passes information between vehicles; electronic countermeasures might therefore be used to interrupt those transmissions. IVIS will be relatively expensive to field in an era of declining defense budgets. It will also be difficult to maintain in the rough and tumble "world" of tank turrets and armor troopers.

But even if these short term problems can be resolved, there is still reason to proceed with caution. The preliminary draft of FM 100-5, Operations states that leadership stands above all other factors in generating superior combat power.[75] Yet the long-term effects on Army leadership of a technological command and control system such as IVIS are not completely clear.

This much is certain: IVIS will help future commanders to manage the enormous amounts of information with which they are going to be bombarded in combat. Commanders will need technological solutions to the problem of information overload. And "determining the most effective techniques to manage information is the most critical and far reaching problem"[76] we face in the command and control operating system.

An important side-effect of IVIS, however, is that it gives commanders the ability to monitor exactly what all their subordinates are doing. And with this power comes the temptation to exercise ever greater control over their employment. This level of control is probably not an intended side-effect. But it seems reasonable to assert that what can be controlled will be. And a commander who sits in front of a graphic display screen controlling individual vehicles may become an unfortunate captive of technology.

As has already been shown, in the case of preventing fratricide such capability will be valuable and will probably save lives. But that is not the only issue at stake in this debate. The death in combat of soldiers as a result of the actions of other friendly soldiers has long been a problem of warfare. It will not soon go completely away, and may never.[77]

The other issue is the possibility that the increased scientific capacity for technological control may overtake a future commander's ability to exercise the art of command. As GEN Foss described the dilemma in his Military Review article, "... control is inversely proportional to command."[78] So the more one controls, the less one can command. The key is to strike a logical balance between the science of increased technological control and the art of the demands of command and leadership on the modern battlefield.

But at what point will that balance tip over? Exactly how much control is enough? In Command in War, Martin van Creveld maintains that "a superior command system may serve as a force multiplier and compensate for weaknesses in other fields."[79] But he also asserts that a leader needs to monitor the actions of subordinates closely "enough to

secure reliable execution, but not so close as to undermine the authority and choke the initiative ... of subordinate commanders at all levels."[80] Obviously, both of these views are correct and open to opposite interpretations by different commanders. Exactly what should our future commanders do?

One might be tempted to avoid the question with the response "it depends on the situation" -- but there is a direct answer. The capacity to control should never exceed the commander's ability to actively follow Bass' three components of transformational behavior: charisma, individualized consideration, and intellectual stimulation. When a tank battalion commander relies on his communications systems to develop an emotional attachment with subordinates, or instill in them the motivation to make the organization's goals more important than their own, it is probably too late.

The development of the leader-follower relationship has to begin long before the shooting starts and the IVIS bursts tactical data through SINCGARS. If a commander wants to unite people with the force of his leadership, show individualized consideration to subordinates, and excite them about the future potential of the unit, beginning at the start point (SP) of an operation will not suffice. The process of outstanding leadership takes more time.

The problem is that technology gives one the capacity to communicate without furthering the leader-follower relationship. In much the same fashion as the once popular *One-Minute Manager* who rushes between managerial tasks, a supervisor can "check the block" after such coordination takes place without ever coming to terms with the mentoring relationship which ought to exist between the leader and subordinate.

We should keep in mind at this juncture that within the context of an automated command and control system the follower has only a limited ability to communicate "up" to the leader. Basically, only tactical information in the form of digitized data will flow from lower level units to their higher headquarters. The primary use of the system during combat will be to monitor and, if necessary, alter the actions of subordinates.

The concept paper for the Battalion and Below Command and Control System reinforces this notion when it states that B2C2 will "reduce the requirement to assemble the orders group, yet retain the advantages associated with face-to-face communications."[81] Not so. The technology will never replace the need for a commander to meet personally with subordinates to lay out a vision and synchronize intent.

That is the single most important component which is not emphasized enough in the literature on systems such as IVIS: leadership. To generate superior combat power on the lethal battlefields of the future, though, leadership has got to come first.

If IVIS saves time for commanders to focus on developing charisma, showing individualized consideration of the soldiers assigned to their units, and clearly communicating an inspirational vision for the future, it will indeed be, in van Creveld's words, "a force multiplier." But if it causes commanders to focus mainly on issues of control at the expense of command, such technology will do more to harm than help the Army in the long run.

So the answer to the research question posed in the introduction to this monograph is a definite yes -- perhaps. Battalion commanders will be able to exercise transformational leadership in units equipped with IVIS,

but they will have to work harder to do so. It will be quite easy to rely on such technology to stay dry and warm during the worst weather and to miss opportunities to be a transformational leader. But the best leadership will be found in units where just the opposite is the case.

This is indeed a tall order, because a wide variety of organizational effects will interfere with the process and complicate it. The international political environment is characterized by the tense rejuvenation of regional ethnic violence and an awkward "balance" of power. The national political context within which the Army exists is marked by a shift toward pressing domestic economic and social concerns as a new administration takes office in January of 1993. Americans will expect the U.S. military to achieve quick, decisive victory should a crisis ever occur. The sum of these external influences will make the challenge of leadership that much more difficult.

Tichy and Devanna's work can again be instructive in this regard. Their analysis of corporate transformational leaders focuses on companies which have to make fundamental organizational changes in order to survive. They literally have to transform to stay in business. In much the same way, the Army now faces a similar dynamic. The Army of the next century will likely be quite different from the Army of 1992. It will still bear the significant burden of protecting our national interests. But it will do so with different methods and technology on markedly different battlefields. The potential to exercise military transformational leadership in such an environment will be significant, as will the return on the effort invested.

As the cautionary note which opened this section implied, a phased approach is the best method for introducing IVIS into the armor force.

The system should be brought on line slowly enough that our thinking about the effects of this technology on leadership practice and doctrine keep up. The tempo of technological change should never become so rapid that we sacrifice the vector of transformational leadership for that of communications technology. The phases should be consistent with force changes mandated by our political leadership and budgetary constraints, and should be deliberately controlled so that IVIS can be fully integrated with other maneuver control systems at the brigade/regimental level and below.

Transformational leadership can thrive and produce performance beyond expectations on the lethal battlefields of the future. It is leadership which empowers subordinates to exercise their individual initiative in synchronization with their commander's vision. It is the type of leadership which our soldiers have earned the right to expect.

ENDNOTES

[1] For a detailed explanation of this concept, see James J. Schneider and Lawrence L. Izzo's article, "Clausewitz's Elusive Center of Gravity," in the September 1987 issue of *PARAMETERS*.

[2] Burns originally described this leadership style with the term transforming; other theorists also use the term transformational, as will be shown later in this monograph.

[3] James MacGregor Burns, Leadership (New York, New York: Harper Colophon Books, 1978), pg. 19. Italics contained in the original text.

[4] Bernard M. Bass, ed., Stogdill's Handbook of Leadership (New York: New York: The Free Press, 1981), pg. 20.

[5] Ibid. Italics contained in the original text.

[6] Burns' orientation on this issue follows from Abraham H. Maslow's hierarchy of needs. Burns viewed the hierarchy as a fundamental component of human behavior and therefore, transforming leadership. Briefly stated, this hierarchy begins with a person's lowest need for physical survival, proceeds to love and affiliation, then recognition and esteem, and finally to the highest level need for self-actualization. Obviously, Burns included affiliation, recognition and esteem, and self-actualization in his definition of moral leadership. For a concise explanation of Maslow's hierarchy, see either: John Senger, Individuals, Groups, and the Organization (Cambridge, Massachusetts: Winthrop Publishers, Inc., 1980), pgs. 86-87; or Abraham H. Maslow, Motivation and Personality (New York, New York: Harper and Row, Publishers, 1954), Chapter 4.

[7] Robert A. Fink, "Vision: An Essential Component of Transformational Leadership." (Ann Arbor, Michigan: University Microfilms International, 1990), pg. 12.

[8] William Roger Witherspoon, Martin Luther King, Jr. To the Mountaintop (Garden City, New York: Doubleday & Company, Inc., 1985), pg. 142.

[9] Ira Peck, <u>The Life and Words of Martin Luther King</u> (New York, New York: Scholastic Book Services, 1970), pg. 67.

[10] Ibid, pg. 13.

[11] James Baldwin, "The Highroad to Destiny," in <u>Martin Luther King, Jr: A Profile</u>, ed. C. Eric Lincoln (New York, New York: Hill and Wang, 1970), pg. 96.

[12] Peck, pg. 37.

[13] Jerry Tallmer, "A Man With a Hard Head," in <u>Martin Luther King, Jr: A Profile</u>, ed. C. Eric Lincoln (New York, New York: Hill and Wang, 1970), pg. 28. Given the publication date of Lincoln's book, however, Tallmer could not possibly have known of Burns' or Bass' theories of leadership.

[14] Peck, pg. 8.

[15] Ibid, pg. 65-66.

[16] Tallmer, pg. 32.

[17] Ralph Abernathy, "Our Lives Were Filled with the Action," in <u>Martin Luther King, Jr: A Profile</u>, ed. C. Eric Lincoln (New York, New York: Hill and Wang, 1970), pg. 226. Abernathy even includes a reference to King's followers as his "disciples" in the emotion-filled letter.

[18] Hater, John J. and Bernard M. Bass, "Superiors' Evaluations and Subordinates' Perceptions of Transformational and Transactional Leadership," <u>Journal of Applied Psychology</u> (Volume 73, No. 4, November 1988): pg. 695.

[19] Bernard M. Bass, <u>Leadership and Performance Beyond Expectations</u> (New York, New York: The Free Press, 1985), pg. 114.

[20] Jay A. Conger, "Theoretical Foundations of Charismatic Leadership," in Jay A. Conger, and Rabinda N. Kanungo and Associates, <u>Charismatic Leadership</u>. (San Francisco, CA: Jossey-Bass Publishers, 1988), pg. 21.

[21] S. N. Eisenstadt, ed., Max Weber on Charisma and Institution Building (Chicago, IL: The University of Chicago Press, 1968), pg. 48.

[22] Jay A. Conger and Rabinda N. Kanungo, "Behavioral Dimensions of Charismatic Leadership," in Jay A. Conger, and Rabinda N. Kanungo and Associates, Charismatic Leadership. (San Francisco, CA: Jossey-Bass Publishers, 1988), pg. 81.

[23] Bass, Leadership and Performance Beyond Expectations, pg. 46.

[24] Ibid, pg. 82.

[25] Bernard M. Bass, "From Transactional to Transformational Leadership: Learning to Share the Vision," Organizational Dynamics (Winter 1990): pg. 20.

[26] Hater and Bass, "Superiors' Evaluations and Subordinates' Perceptions of Transformational and Transactional Leadership," pg. 695.

[27] Bass, "From Transactional to Transformational Leadership: Learning to Share the Vision," pg. 20.

[28] David A. Waldman, Bernard M. Bass, and Walter O. Einstein, "Leadership and Outcomes of Performance Appraisal Processes," Journal of Occupational Psychology (Volume 60, 1987), pg. 178.

[29] Bass, "From Transactional to Transformational Leadership: Learning to Share the Vision," pg. 21.

[30] Judy B. Rosener, "Ways Women Lead," in Military Leadership: In Pursuit of Excellence, eds. Robert L. Taylor and William E. Rosenbach (San Francisco, California: Westview Press, 1992), pg. 188.

[31] Bass, Leadership and Performance Beyond Expectations, pg. 17.

[32] Bass, "From Transactional to Transformational Leadership: Learning to Share the Vision," pg. 21.

[33] For instance, the man who eventually became Propaganda Minister of the Nazi regime, Joseph Goebbels, once wrote to Hitler after the Beer Hall Putsch: "Like a rising star you appeared before our wondering eyes, you performed miracles to clear our minds and, in a world of skepticism and desperation, gave us faith. You towered above the masses, full of faith and certain of the future, and possessed by the will to free those masses with your unlimited love for all those who believe in the new Reich." William L. Shirer, The Rise and Fall of the Third Reich (New York, New York: Simon and Schuster, 1959), pg. 127.

[34] See, for example, the Winter 1990 article from Organizational Dynamics referenced above in note #25.

[35] Jay A. Conger, and Rabinda N. Kanungo and Associates, Charismatic Leadership (San Francisco, CA: Jossey-Bass Publishers, 1988), pg. 7.

[36] Noel M. Tichy and Mary Anne Devanna, eds., The Transformational Leader (New York, New York: John Wiley and Sons, 1992), pg. iii.

[37] Ibid, pg. 5-6.

[38] Ibid, pg. 16.

[39] Ibid, pg. 135.

[40] David H. Petraeus, Daniel J. Kaufman, and Asa A. Clark, "Why An Army?," ARMY (Volume 37, No. 2, February 1987): pg. 29.

[41] Bass, Leadership and Performance Beyond Expectations, pg. 199.

[42] Martin Blumenson, The Patton Papers: 1940-1945 (Boston, Massachusetts: Houghton, Mifflin Company, 1957), pg. 427.

[43] Edgar F. Puryear, Jr., 19 Stars: A Study in Military Character and Leadership, 2d edition (Novato, California: Presidio Press, 1981), pg. 233.

[44] Martin Blumenson, Patton: The Man Behind the Legend (New York, New York: William Morrow and Company, Inc., 1985), pg. 9.

[45] Ibid, pg. 150.

[46] H. Essame, <u>Patton: A Study in Command</u> (New York, New York: Charles Scribner's Sons, 1974), pg. 105.

[47] Puryear, pg. 261.

[48] George S. Patton, Jr., <u>War As I Knew It</u> (Boston, Massachusetts: Houghton Mifflin Company, 1947), pg. 355.

[49] Ibid. pgs. 373-374.

[50] Milton F. Perry and Barbara W. Parke, <u>Patton and His Pistols</u> (Harrisburg, Pennsylvania: The Stackpole Company, 1957). See, in particular, page six of the photo group contained in the center of the book.

[51] Blumenson, <u>Patton: The Man Behind the Legend</u>, pg. 151.

[52] Ibid. pg. 152.

[53] Perry and Parke, pg. 73.

[54] Puryear, pg. 260.

[55] U.S. Army, Field Manual 22-100 -- <u>Military Leadership</u>, (31 July 1990), pg. 1.

[56] James G. Hunt and John D. Blair, <u>Leadership on the Future Battlefield</u> (New York, New York: Pergamon-Brassey's, 1985), pg. 31.

[57] Robert L. Taylor and William E. Rosenbach, <u>Military Leadership -- In Pursuit of Excellence</u> (Boulder, Colorado: Westview Press, 1992), pg. xi.

[58] Editors of Defense Electronics, <u>The Command, Control, Communications, and Intelligence Handbook</u>, 3rd edition (Palo Alto, California: EW Communications, Inc., 1988), pg. 114.

[59] Office of the Assistant Secretary of the Army (Research, Development and Acquisition), Weapon Systems (Washington, D.C.: Department of the Army, 1 March 1992), pg. 171.

[60] Ibid, pg. 169.

[61] John Williamson, editor. Jane's Military Communications: 1992-1993 (Alexandria, Virginia: Jane's Information Group, Inc., 1992), pg. 104. The VRC family of radios dates all the way back to 1967 -- 25 years.

[62] Department of the Army, "U.S. Army Operations Concept for Battalion and Below Command and Control," (Ft. Leavenworth, KS: U.S. Army Combined Arms Command, 10 September 1992), pg. 8.

[63] Theodore R. Blasche and Carl W. Lickteig, "Utilization of a Vehicle Integrated Intelligence [V(INT)2] System in Armor Units," (Ft. Knox, KY: U.S. Army Research Institute for the Behavioral and Social Sciences, April 1984), pg. 4-5.

[64] "U.S. Army Operations Concept for Battalion and Below Command and Control," pg. 24.

[65] The CVC2 Systems Implementation Working Group, "System Specification for Combat Vehicle Command and Control," (Warren, MI: U.S. Tank-Automotive Command, 9 March 1992), pg. 1.

[66] Ibid, pg. 8.

[67] CPT James B. Henderson, "IVIS Operational Concept," Directorate of Combat Developments Report, (Fort Knox, Kentucky: U.S. Army Armor Center, 1992), pg. 6.

[68] See, for example, SGT Timothy Boley's pithy description of the tank's performance during an After Action Review with Army Vice Chief of Staff GEN Dennis Reimer. Boley's view was expressed in the title of Neil Munro's article, "Kick-Ass Tank," Army Times, 5 October 1992, pg. 35.

[69] The specific information in this section on the capabilities of IVIS can be found in Henderson's paper, pgs. 7-26.

[70] Henderson, pg. 17.

[71] Ibid, pg. 26.

[72] Ibid, pg. 42.

[73] Peter B. Polk and Gary A. Lee, "Battlefield Management System: Data Requirements to Support Passage of Company Level Tactical Information" (Monterey, California: Naval Postgraduate School, March 1987), pg. 4.

[74] The specific information regarding the engagements and firefight analyses for both the scout platoon and task force are taken from Polk and Lee's pages 91-96.

[75] U.S. Army, Field Manual 100-5 -- Operations (Preliminary Draft) (21 August 1992), pg. 2-14.

[76] LTC Jack Burkett, "Tactical Information -- What You See Is All You Get," Military Review (Volume 71, No. 11, November 1991), pg. 39.

[77] One of the most difficult aspects of the issue of amicicide is the emotional component of such accidents. During Desert Storm, the combination of intense press coverage and the sense of human tragedy which accompanies such incidents proved a quite volatile mixture. However, the facts show that there is one factor which is "the primary cause of most amicicide incidents: direct human error." As long as people fight wars, there will probably continue to be amicicide problems. For a more through analysis of the issue of fratricide in modern war, see Charles R. Shrader, Amicicide: The Problem of Friendly Fire in Modern War, (Ft. Leavenworth, Kansas: Command and General Staff College, December 1982), pgs. 106-107.

[78] GEN John W. Foss, "Command," Military Review (Volume 70, No. 4, May 1990), pg. 5.

[79] Martin van Creveld, Command in War (Cambridge, Massachusetts: Harvard University Press, 1985), pg. 4.

[80] Ibid, pg. 8.

[81] "U.S. Army Operations Concept for Battalion and Below Command and Control," pg. 14.

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